

FAST IMPLEMENTATION OF HOMOMORPHIC FILTERS FOR IMAGE ENHANCEMENT

Abstract of the Disclosure

A method for fast implementation of a homomorphic filtering operation is disclosed. The method includes receiving an input image having an illumination component and an object component. The input image is subsampled to obtain a subsampled image. The subsampled image is processed to obtain a reduced-size image of a lightsource component of the subsampled image. A full-scale image of the lightsource component of the subsampled image is derived, and the full-scale lightsource image is subtracted from or divided through the input image to reduce the effect of the illumination component in the input image. The filtering operation is preferably carried out in the frequency domain owing to the need for a filter that encompasses the entire subsampled image. The low-frequency nature of the reduced-size lightsource image allows for safe interpolation of same to obtain a full-scale image of the lightsource.